

REMARKS

Claims 1-31 are now present in the case. Consideration of the application in view of the following remarks is respectfully requested.

Claim Rejections - 35 USC § 102

Claims 1-3, 7-12, 16-17, 20-25, 28-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Chandrasekaran et al. U.S. Patent # 6,397,352 (hereinafter Chandrasekaran).

Currently amended claim 1 recites:

A method of handling messages received at a messaging system server, the method comprising:

storing, in non-persistent storage, messages received from at least one client; removing delivered messages from the non-persistent storage; and

saving at least one of the messages stored in the non-persistent storage to persistent storage after a delay interval, wherein the at least one message stored in the persistent storage contains message data.

The claimed invention, as recited in claim 1 and variously recited in claims 13, 16, and 24, provides methods and systems for managing the flow of messages between multiple applications by manipulating the storage of messages within persistent and non-persistent memory on a server. To improve message handling of messages, the claimed invention can balance the performance cost of storing messages, including message data, in persistent storage with the protection offered by doing so. The claimed invention is capable of delivering many messages to a destination application before expiration of a delay interval, thus avoiding the need of saving a large number of messages to persistent storage. Storing fewer messages in persistent storage and more messages in non-persistent storage increases the message handling speed of the claimed invention and reduces the amount of persistent storage needed. For messages that remain

undelivered beyond an expiration of a delay interval, however, the claimed invention still provides the reliability of persistent storage.

Chandrasekaran does not disclose “saving at least one of the messages stored in the non-persistent storage to persistent storage after a delay interval, wherein the at least one message stored in the persistent storage contains message data” (emphasis added) as recited in claims 1, 16, and 24. To the contrary, Chandrasekaran discloses in column 6, line 61 through column 7, line 57, a mechanism that allows a source site and a destination site to determine only whether a message has been sent or received, even after a source site or destination site failure. In Figure 2A, Chandrasekaran discloses non-volatile memory 240 within source site 200 and non-volatile memory 242 within destination site 202 for only storing message header information like sequence number 228, unique identifier 230, propagation state 232, and source address 236. This type of message header information can be recalled from the non-volatile memory during periods of source or destination failure to verify if a message has been sent from source site 200 or received by destination site 202 but cannot be used to send or re-attempt to send the message. There is no disclosure within Chandrasekaran regarding saving a message from non-persistent (or volatile) storage to persistent (or non-volatile) storage, wherein the actual message data is stored in persistent storage such that the message and the message data can be retrieved after a system failure and be sent. Chandrasekaran merely discloses certain header or accounting information stored within non-volatile storage such that a message can be identified, but no message can be retrieved or sent, at a later date.

For at least this reason, Applicants respectfully submits that independent claims 1, 16, and 24 are patentably distinguishable over the cited reference. Dependent claims 2-12, 17-23, and 25-31 are also considered allowable based upon their dependence on independent claims 1,

16, and 24. Therefore, Applicants respectfully requests that the Examiner reconsider the rejection of claims 1-12 and 16-31, and withdraw it.

Claim Rejections - 35 USC § 103

Claims 4-6, 13-15, 18-19, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chandrasekaran in view of Stein et al. U.S. Patent 6,289,212 (hereinafter Stein).

Claims 4-6, 18-19, 26, and 27 depend on currently amended independent claims 1, 16, and 24. Furthermore, claims 14 and 15 depend on currently amended independent claim 13.

Currently amended independent claim 13 recites:

A method of handling guaranteed messages received at a message-orient middleware server over a network, the method comprising:

storing, in a log queue in non-persistent storage, guaranteed messages received from at least one client as the guaranteed messages are received;

removing guaranteed messages from the non-persistent storage as the guaranteed messages are delivered;

dynamically determining a delay time period;

storing at least one of the guaranteed messages stored in the non-persistent storage in persistent storage after the determined delay period, wherein the at least one guaranteed message stored in the persistent storage contains message data; and

transmitting a guarantee acknowledgement message to a client that sent a received message, the guarantee acknowledgement message indicating that the received message will not be lost by the server.

As stated previously, Chandrasekaran does not disclose “saving at least one of the messages stored in the non-persistent storage to persistent storage after a delay interval, wherein the at least one message stored in the persistent storage contains message data” (emphasis added) as recited in claims 1, 16, and 24. In addition, Chandrasekaran does not disclose “storing at least one of the guaranteed messages stored in the non-persistent storage in persistent storage after the determined delay period, wherein the at least one guaranteed message stored in the persistent

storage contains message data” (emphasis added), as recited in claim 13. Chandrasekaran is strictly focused on storing portions of a message, including a sequence number, UID, and source ID within non-volatile storage such that this header information can be recalled during a source or destination site failure. The information stored is merely sufficient for identification of the message and no other purposes. Chandrasekaran is not focused on, nor offers any disclosure for, retaining messages in non-persistent storage, including message data.

Stein does not remedy the deficiencies of Chandrasekaran for at least the following reasons. Stein does not disclose “storing, in a log queue in non-persistent storage, guaranteed messages received from at least one client as the guaranteed messages are received” (emphasis added), as recited in claim 13. To the contrary, Stein discloses, in column 6, line 58 through column 7, line 10, a method for providing electronic mail services during times when an electronic network is not available by pre-loading electronic mail messages into a persistent memory. Storing messages exclusively in persistent memory is the condition that the present invention, as recited in independent claims 1, 13, 16, and 24, tries to avoid such that an increase in message handling speed and a reduction of persistent storage cost can be achieved without sacrificing the integrity of the stored data.

Furthermore, Stein does not disclose “storing at least one of the guaranteed messages stored in the non-persistent storage in persistent storage after the determined delay period, wherein the at least one stored guaranteed message stored in the persistent storage contains message data,” as recited in claim 13. As stated previously, Stein only discloses storing electronic mail in persistent storage and not moving a message from non-persistent memory to persistent memory after a delay period.

The deficient disclosures of Chandrasekaran and Stein thus fail to establish even a *prima facie* basis from which a proper determination of obviousness can be made. It is therefore respectfully submitted that independent claims 1, 13, 16, and 24, as amended, are patentable over Chandrasekaran and Stein.

Claims 4-6, 14, 15, 18-19, 26, and 27 depend on independent claims 1, 13, 16 and 24, and thus all arguments advanced above with respect to claims 1, 13, 16, and 24 are hereby incorporated so as to apply to claims 4-6, 14, 15, 18-19, 26, and 27. Thus, it is respectfully submitted that claims 4-6, 14, 15, 18-19, 26, and 27 are also patentable over Chandrasekaran and Stein for at least the same reasons in addition to the further recitations provided in those claims.

In addition, Stein does not disclose “transmitting a guarantee acknowledgement message to a client that sent a received message, the guarantee acknowledgement message indicating that the received message will not be lost by the server,” (emphasis added) as recited in claims 4, 13, 18, and 26. Stein simply discloses, in column 9, lines 10-38, a facsimile processing system where electronic messages can be sent to a facsimile machine and the facsimile machine confirms receipt of the messages. There is no disclosure within Stein regarding the guarantee acknowledgement message indicating the received message will not be lost by the server (i.e., has been stored in persistent memory). Stein merely discloses a facsimile machine confirming receipt of an electronic mail message. Therefore, for at least this reason, claims 4, 13, 18, and 26 are allowable over the cited references.

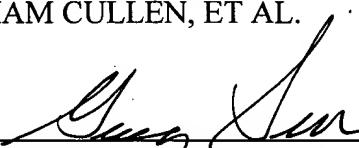
For at least the reasons stated above, Applicants respectfully submits that claims 4-6, 14, 15, 18-19, 26, and 27 are patentably distinguishable over the cited references. Therefore, Applicants respectfully requests that Examiner reconsider the rejection, and withdraw it.

CONCLUSION

Applicants respectfully invite the Examiner to contact Applicants' representative at the number provided below if the Examiner believes it will help expedite furtherance of this application.

Respectfully submitted,
WILLIAM CULLEN, ET AL.

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By: 
Greg T. Sueoka, Reg. No.: 33,800
Attorney for Applicants
Fenwick & West LLP
Silicon Valley Center
801 California Street
Mountain View, CA 94041
Tel.: (650) 335-7194
Fax.: (650) 938-5200

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